Quiotania: A New Genus of Apocynaceae–Apocynoideae from Northern Colombia

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During fieldwork carried out as part of a counterpart collecting program between the Missouri Botanical Garden and the Universidad de Antioquia in Medellín, Colombia, a previously unknown laticiferous vine was collected twice by the author in a span of four days in late 1986. Both of the collecting localities lie at mid elevation in the western watershed of the Río Magdalena in south-central Antioquia.

Quiotania colombiana Zarucchi, gen. et sp. nov. TYPE: Colombia. Antioquia: Mpio. de La Unión, Km 33 of road Sonsón–La Unión (23 km from La Unión), 5°52′N, 75°08′W, alt. 2,330 m, 8 Dec. 1986 (fl), *Zarucchi & Bedoya 4510* (holotype, HUA-33422; isotypes, COL [specimen distributed from HUA], K, MO). Figure 1.

Fruticosa volubilis, *Mandevillae* et *Tintinnabulariae* affinis; folia opposita petiolata membranacea ad subcoriacea, supra nervo medio inconspicue glanduligero, subtus in axillis nervi medii foviis destituta; inflorescentia lateralis pedunculata multiflora congesta; corolla regularis 5-partita, pallide lutea, tubo brevi; fructus ignotus, verisimiliter folliculus apocarpus.

Twining lactescent, heliophytic vines. Stems terete, 2.0–2.5 mm diam. with young stems purplish brown, moderately to sparingly hispidulous, becoming lenticellate and glabrous with age; very young stems somewhat flattened; interpetiolar ridge mostly prominent; exuded latex white. Leaves opposite, entire, brochidodromous, membranaceous to subcoriaceous, elliptic to oblong-ovate in outline, 3–5(–6) cm × 1.2–1.8(–2.2) cm, glabrous on both surfaces, usually with 11–16 pairs of lateral nerves, apex acute to short acuminate with extended tip, base rounded to subacute, midrib prominent below, prominulous above, lateral veins very slightly impressed above, neither raised nor impressed below but darkening upon drying; midrib glanduliferous above within ca. 2 mm of attachment with petiole with 1 (rarely 2) pair of sharply conical or urn-shaped and divergent glands; lacking foveae in axils of lateral nerves on lower surface; petioles 4–7(–8) mm long, hispidulous, slightly canaliculate. Inflorescence an axillary or pseudo-terminal (i.e., axillary to a terminal bud which soon elongates) racemose cyme; peduncle 5–12 mm long, densely hirtellous. Flowers (8–)12–20 per inflorescence and generally tightly clustered along the axis and thus approaching a pseudo-umbellate condition, pale yellow; floral bracts 1.5–2.0 mm × 0.25–0.3 mm, narrow, acuminate, caducous. Calyx 5-parted with lobes equal or subequal, ovate, 2.0–2.5 mm × 1.0–1.3 mm, separate nearly to the base, quincuncially imbricate, ciliate, apex acute to acuminate, abaxial surface centrally tomentose becoming diminished toward the margins and apex, adaxial surface essentially glabrous; colleters basal, two with each ca. 0.5 mm × 0.2 mm, flattened, thin, slightly zigzag in outline, located just within the margin of the sepal. Corolla fused into a straight tube, 2.5–3.0 mm long, very slightly constricted at the base; lobes 5, overlapping to the right, asymmetrical in outline, 2.5–3.0 mm × 2.0–2.5 mm, apex acute to somewhat rounded; tube and limbs glabrous outside, densely tomentose just below opening of tube and with a ring of five ± arching hispidulous patches opposite the top of the glands surrounding the ovary. Stamens 5, agglutinated to the stigmatic head; filaments mostly adnate to the corolla tube but free, geniculate, and tomentose for their ultimate 0.5–0.6 mm; anthers somewhat exserted but enveloped by the corolla lobes, ca. 2 mm × 0.6–0.7 mm, with parallel thecae, their basal lobes slightly auriculate; pollen granular. Ovary composed of two falcate-botuliform, separate carpels, 0.6–0.7 mm high, rounded at the top with the styles becoming joined just above the ovary, each carpel with 15–20 ovules in 3–4 series attached to the adaxial placentae; ovarian nectaries 5, tightly surrounding and nearly as tall as the ovary, apices rounded, free or connate in the basal half. Stigmatic head short-conical and five-angled in cross section, 0.7–0.8 mm high and 0.6–0.8 mm diam. at its base with a bifid acumen 1.2–1.3 mm long divided for the ultimate ca. 0.5 mm; the five basal projections generally obclavate with two rounded lateral projections basally. Fruits and seeds unknown [probably twin follicles attached at the apex, at least during development, each with few to many seeds having an apical coma].

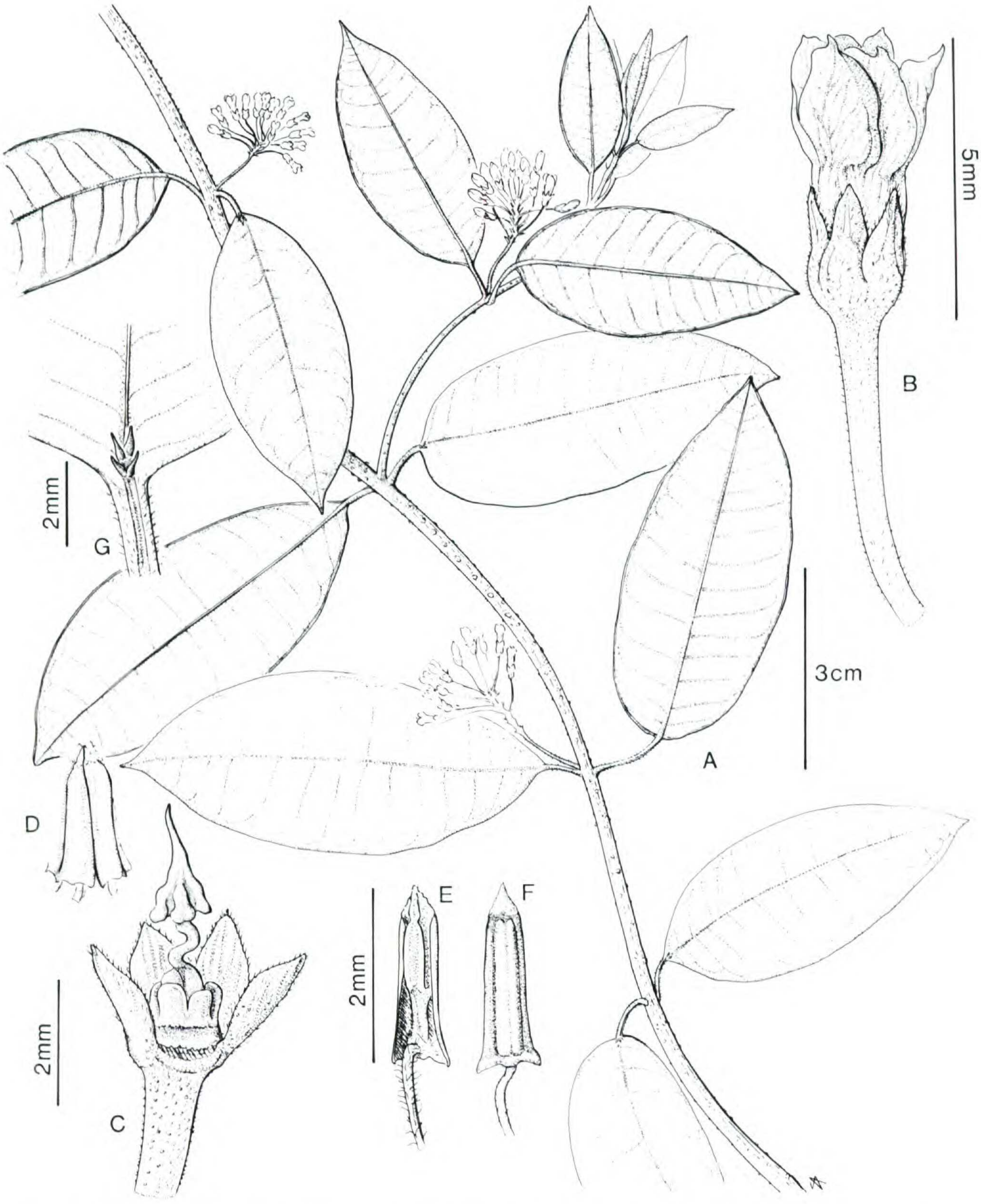

Figure 1. *Quiotania colombiana* Zarucchi. —A. Habit. —B. Flower. —C. Dissected flower showing calyx, ovary, glands, style, and stigmatic head. —D. Agglutinated anthers. —E–F. Single anthers. —G. Leaf base with glands. Drawn from *Zarucchi & Bedoya 4510.*

Distribution and habitat

Quiotania colombiana is known only from two collections from wet to very wet remnant forest at mid elevations of north-central Colombia in the western watershed of the Río Madgalena in the Department of Antioquia. Both gatherings were made in areas with high light intensity, at the edges of moderately to highly disturbed forest.

Paratype collection. COLOMBIA. ANTIOQUIA: Mpio. de Guatapé, ca. 8 km NNE of Guatapé, Vereda Santa Rita, Finca Montepinar, 6°17′N, 75°08′W, alt. 1,840 m, 4 Dec. 1986 (fl), *Zarucchi 4391* (COL [specimen distributed from HUA], HUA, MO, US).

The new generic name is an anagram of the Colombian department where the plant was collected. The specific epithet denotes the country.

Conservation status

The general area in which the two collections were made has been subjected to considerable deforestation and related human pressures, yet it appears from field observations that the plant tolerates even heavy disturbance. With diligent field searches in similar habitats, it is likely that one could locate the species growing between 1,500 and 2,500 m on the eastern part of the Cordillera Central from central Antioquia southward at least into the neighboring Department of Caldas.

It is quite surprising to discover a new genus of Apocynaceae in the northern Andes of Colombia, especially when one of the two known localities lies a proverbial "stone's throw" from the old road connecting Colombia's two largest cities, Bogotá and Medellín. The newly discovered plant was found at the edge of openings, within several meters of a stream bank at 2,330 m (4510) and also along a cleared powerline right-of-way at 1,840 m (4391). Both collections were gathered from flowering plants that had no fruits. The plants at the type locality have been revisited on three subsequent occasions, and each time the plants have been found to be sterile. In the field the plant closely resembles a milkweed by its foliage, nature of the inflorescence, and appearance of the flowers. This same initial confusion in the field has also been associated with the Mexican/Guatemalan genus *Thenardia*, which has diffusely compound umbelliform cymes (W. D. Stevens, pers. comm.).

In introductory comments about members of the subfamily Echitoideae [= Apocynoideae], Woodson (1933) mostly limited his remarks to the New World members and noted the ". . . perplexing problem . . . concerning generic relationships." In this first part of his three-part treatment of these American Apocynaceae, Woodson distinguished an assemblage of four genera, *Allomarkgrafia*, *Mesechites*, *Macrosiphonia*, and *Mandevilla*, from the remaining New World genera based on their anthers with thick obtuse basal or truncate auricles, the pentagonal stigma, and leaves generally having glands on the midrib above. Members of *Forsteronia* subg. *Forsteronia* have glands at the base of the midrib, but Woodson placed *Forsteronia* with other genera based on anther and stigmatic characters. In the concluding part of the monumental treatment, Woodson (1936) described *Tintinnabularia* from Guatemala, placing it among the four above-mentioned genera. These genera were again treated by Woodson (1938) in the Apocynaceae for the North American Flora, where he provided a slightly revised key to the genera. Certain exceptions to the differences as pointed out for the initial four were noted in Woodson's 1933 discussion and in his key to the genera, especially the fact that most species of *Forsteronia* also bear the same foliage glands (see Hansen, 1985). Woodson also noted that in many species of *Mandevilla* subg. *Exothostemon* the glands are scattered along the midrib, not just aggregated near the petiole attachment. The last word concerning generic limits of the *Mandevilla–Mesechites–Macrosiphonia* complex and near relatives has obviously not yet been written.

It is not clear to which genus *Quiotania* might be most closely related. *Quiotania*, *Mandevilla*, and *Macrosiphonia*, as they are currently circumscribed, have unbranched inflorescences, whereas *Allomarkgrafia*, *Mesechites*, and *Tintinnabularia* have branched inflorescences. *Tintinnabularia* (and the neotropical genera *Forsteronia* and *Malouetia*) has domatia on the abaxial surfaces of the leaves, generally in the central vein axils; specimens of the two collections of *Quiotania* do not exhibit leaf domatia. Hansen (1985) has noted, at least in the case of *Forsteronia*, that "domatia may be present or absent from leaf to leaf and from specimen to specimen, and are completely lacking in only a few taxa." The usefulness of domatia as a character is therefore questionable. It is clear from floral characters, especially the lack of a pronounced corolla tube, that *Quiotania* is distinct from *Mandevilla*, the genus where one would place the new taxon using Woodson's 1938 key in North American Flora.

Following the various studies by Woodson on the family Apocynaceae, Pichon (1950) treated the family at the generic and infrageneric level on a worldwide basis. In the 1950 work, a close relationship between the genera having leaf glands was retained. Pichon erected five subtribes within his "tribu des Ichnocarpées," including Mandevillinae with three genera: *Mesechites* (including *Allomarkgrafia*), *Mandevilla* (including *Macrosiphonia*), and the Argentinean–Chilean *Elytropis*. Pichon did note, however, that this last-named, monotypic genus might best represent its own subtribe. A separate subtribe, Forsteroniinae, included only *Forsteronia* and *Tintinnabularia*. Pichon's subsuming of *Allomarkgrafia* and *Macrosiphonia* in the other genera has generally not been followed by current systematists.

Fruiting collections of *Quiotania* will surely shed more light on its position within the subfamily. It is clear that additional studies are needed, including phenetic and cladistic analyses of all genera in the Apocynoideae and representative genera in the Asclepiadaceae and less advanced groups of the traditional Apocynaceae. It is also clear that the highly elaborated relationship between the gynoecium and

surrounding stamens in these advanced members of the Apocynaceae (sens. str.) and Asclepiadaceae may have a much closer phylogenetic relationship with each other than with "primitive" Apocynaceae, such as those of the tribe Ambelanieae (Zarucchi, 1988).

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